that can at present be done to define a race-type is vaguely to make out some of its dominant features. A good example may here be seen in Plate I., which is headed "Germanic Types," though not consisting entirely of them. The last portrait is of a Welsh market girl, and just above her is Livingstone, who as we know was from the Gaelic Island of Ulva. If there is such a thing as a Keltic type, these two portraits show it; they might very well have been father and daughter. The contrast of the dark, near-eyed, compact-featured Welsh girl with the fair North German peasant woman next her is excellent, and the Bavarian lady next again shows the difference as well as possible between South and North German.

It is needless to enumerate the peoples of each district of the globe who have contributed their cartes-de-visite to this album, but a few remarks on incidental points occur as one turns over the plates. A young newly-married couple from China suggest an answer to the question, At what age may ethnological portraits best be taken? No doubt it should be somewhere about twenty years old, more or less, when the physical type has become developed, but the influence of thought, occupation, and circumstances have not yet masked the lines of race. In these plates, the elderly Chinese broker and the Japanese gentleman aged sixty-four, are in expression curiously like what Europeans of the same age and occupations might be. Yet when they were young, the faces of these Orientals probably bore no such apparent European likeness. What an ethnologist wants is not the cast of education and experience, but the mere national face, and this must be taken young. Again, for contrast between purity and mixture of nations, it is interesting to compare Plate XII., containing Siberian tribes of comparatively uniform type, with the heterogeneous figures in the next plate from Morocco and Algeria. The gradual blending of races, of which mention has been already made, may be well studied in Plates VIII. to XI., which bring into view better than it ever has been shown before, how the Malay peculiarities are to be traced into the Chinese and Japanese types. Lastly it may be remarked that the often-repeated ethnological theory deriving the natives of America from Eastern Asia, will receive but little support from a comparison of the portraits here given from Siberia, Japan, and China on the one hand, and North America on the other.

By way of fault-finding, it may be added that the short letterpress at the foot of the plates wants revision.

EDWARD B. TYLOR

OUR BOOK SHELF

The Eastern Seas: being a Narrative of the Voyage of H.M.S. "Dwarf" in China, Japan, and Formosa. With a Description of the Coast of Russian Tartary and Eastern Siberia, from the Corea to the River Amur. By Capt. B. W. Bax, R.N. With map and illustrations. (London: John Murray, 1875.)

CAPT. BAX spent three years, 1871-4, cruising about in the waters on the east of Asia, and has written a pleasant gossipy account of what he saw. He went over ground that has been often traversed, and has not much that is new to tell. Many details, especially historical, are confessedly borrowed from well-known authorities, so that the work is to some extent a compilation. An unnecessarily large amount of space is devoted to accounts of various wrecks that occurred on the coasts near where the *Dwarf* happened to be cruising, and many incidents of trifling importance are narrated, adding considerably to the size but not to the value of the book. Probably the most valuable part of the work is that wherein the author's visits to Formosa and to the Russian coasts are described. Capt. Bax had some favourable opportunities of becoming acquainted with the Formosans, both civilised and wild, and gives some interesting details as to their appearance, manner of life, and customs; his second chapter is a history of the island from its discovery by the Chinese. There is a good map of the island, and it would have added to the value of the work had there been a map of the whole region with which the book is concerned. In his narrative of the voyage of the *Dwarf* along the coast of Asiatic Russia, some interesting facts are given as to the present condition of the Russian possessions in that quarter as far north as Nikolevsk. Capt. Bax also made an ascent of Fusiyama, in Japan, of which he gives a pleasant account. Altogether, although the work adds very little to our knowledge of either China, Japan, or Asiatic Russia, it contains a good deal of interesting reading.

Commodore J. G. Goodenough. A Brief Memoir. By Clements R. Markham, C.B. (London and Portsmouth: Griffin and Co.)

THIS is a modest and well-written narrative of the life of a man whose premature death is a distinct loss to the British navy and to geographical science. Every naval officer should read it, and indeed all who wish to be inspired by the record of a noble life. The unfortunate circumstances connected with the death of Goodenough must be fresh in the memory of our readers. He undoubtedly was a martyr to what he conceived to be his duty; he fell in the attempt to conciliate the savages of Santa Cruz Island, and to assure them of the good intentions of England towards them. Had he been spared he would no doubt have done much good in this direction, as well as added to our knowledge of the Pacific Islands. Commodore Goodenough had high ideas of the scientific and other qualifications which are necessary to make an efficient naval officer, and took every opportunity to advocate these ideas. He himself was a man of varied attainments, and was a student up to the last. He took a warm interest in geographical science, and was for long an earnest advocate for a new Arctic expedition. Commander Markham and several other officers on board the *Alert* and *Discovery* had the advantage of serving under Goodenough; while Mr. C. R. Markham was himself his shipmate at an early part of his career. A good portrait is prefixed to the narrative.

LETTERS TO THE EDITOR

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.*]

Sir Thomas Millington and the Sexuality of Plants

I THOUGHT it was sufficiently obvious that Sir Thomas Millington's claims to be regarded as the discoverer of the function of the stamens in what are called hermaphrodite flowers was based upon what is stated by Grew. That I confess has always appeared to me conclusive upon the matter. I am not aware that Sir Thomas Millington ever published anything in his own name upon the subject.

With regard to Grew's book, I think Mr. Bennett is still under some misapprehension, which I trust he will allow me to point out to him. In NATURE (vol. xiii. p. 86) he speaks of a first edition of 1671, and also of an edition of 1681. In NATURE (vol. xiii. p. 166), he appears to identify the first of these with Grew's Treatise, "The Anatomy of Vegetables Begun, with a general account of vegetation founded thereupon," published in

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1672. In 1682, he says that Grew published an enlarged edition of this smaller work under the *same* title. But this is not really the state of the case. The title of the large book is "The Anatomy of Plants, with an Idea of a Philosophical History of Plants." The volume has Sir Christopher Wren's *imprimatur*, which runs as follows :—

"At a meeting of the Royal Society, Feb. 22, 168½, Dr. Grew having read several *Lectures* of the *Anatomy* of *Plants*, some whereof have been already printed at divers times, and some are not printed; with several other *Lectures* of their *Colours*, *Odours*, *Tasts*; as also of the *Solution* of *Salts* in *Water*; and of *Mixture*; all of them to the satisfaction of the said *Society*: It is therefore Ordered, That He be desired, to cause them to printed (*sic*) together in one Volume.

"CHR. WREN, P.R.S."

The "Anatomy of Plants Begun" is simply reprinted in this volume. "The Anatomy of Leaves, Flowers, Fruits, and Seeds" is, however, printed for the first time. In the second part of this, called "The Anatomy of Flowers prosecuted with the bare eye and with the microscope," which was read before the Royal Society, Nov. 9, 1676, is contained Grew's discussion of the function of the parts of the flower in which the statement about Millington occurs..

Grew's "Anatomy of Plants" can no more be described as a second edition of the "Anatomy of Plants Begun" than Prof. Huxley's "Lay Sermons" can *collectively* be described as a second edition of any *one* essay republished in that volume.

The object of the quotation from Sprengel was to show what was his opinion of the claims of Camerarius to be considered the discoverer of sexuality in plants. As Mr. Bennett (vol. xiii. p. 166) makes a point of nothing being cited from Sprengel as regards Millington; here is what Sprengel says on that head. Speaking of Grew :—

"Summam vero meruit et seræ posteritatis gratitudinem, quod primus sexuum differentiam in partibus vel fœcundantibus vel fœcundandis *non invenerit, sed tamen defenderit* ac evulgaverit. Ipse verecunde satis et candide Thomam Millingtonium, Savilianum professorem Oxonii nominat, qui sibi dixerit, apparatum eum seminiformem (the anthers) vices partium mascularum probabiliter gerere" ("Hist. rei Herb.," ii. 14).

Next as to Camerarius and Ray, Mr. Bennett says that the observations of the first antedated those of the second by two years. On Mr. Bennett's own showing the date of Camerarius's tract is 1694 (NATURE, vol. xiii. p. 86). The date of the first volume of Ray's "Historia," in which he alludes to the subject, is 1686.

As to Theophrastus it is well known that classical writers on natural history were aware that the unisexual flowers of the date required the "pulvis maris," or pollen, to enable them to set their fruit. But I am not aware that till the time of Grew and Millington the fact that the vast majority of plants contain stamens and ovaries, *i.e.*, both male and female organs, had ever been ascertained. What these persons did for the first time was to point out the function of the essential organs of the flower.

Mr. Bennett, instead of taking his facts secondhand from Prof. Sachs's no doubt excellent "Geschichte," ought to have looked into the authorities himself. He would then avoid the error of quoting non-existent editions and of drawing conclusions which would be inexpugnable if they were not based on erroneous dates.

A. B. C.

Article "Birds" in "Encyclopædia Britannica"

IN that portion of the article "Birds," which I have lately written for the "Encyclopædia Britannica," I said (page 729, column 2) that *Odontopteryx* had "jaws armed with true teeth," and in this respect resembled *Ichthyornis*. The mistake has just been pointed out to me, and I shall be greatly obliged by being allowed to correct it, as far as is possible, in NATURE. The sentence should run thus: "jaws armed with tooth-like processes, and in this respect differing from Professor Marsh's *Ichthyornis*."

ALFRED NEWTON

Athenæum Club, Jan. 3

Fertilisation in the Basidiomycetes

IN your review of Dr. Pringsheim's "Jahrbücher" (NATURE, vol. xiii. p. 156) you refer to Dr. Max Reess' paper on the Fertilisation of the Basidiomycetes; this paper you compare with the results recently obtained by Van Tieghem, Dr. Eidam, and myself, and you say that the observations of the three former all tend in one direction, which fact should lead botanists to look with very great caution on my results, which are somewhat different.

As I am tolerably well acquainted with the three papers first mentioned, perhaps you will kindly allow me to point out that Dr. Reess' carpogonium, and the carpogonium of Dr. Eidam, are very different bodies, and that the latter author, in the "Botanische Zeitung," even puts a note of interrogation before his own interpretation of the body he figures as a possible carpogonium.

The spermatozoids as described and illustrated by me in the *Gardeners' Chronicle* for Oct. 16 and 23 last, are not essentially different from Dr. Eidam's spermatia; they agree in size, but I maintain that the threads which bear these male bodies come direct from the cystidia, and not from the basidia, and that they are at first spherical. In Dr. Eidam's excellent plate there are sixteen germinating spores shown which do *not produce spermatia*, and in each instance the spores are shown *as ruptured*. Three other spores are shown as *producing spermatia*; now these latter spores are engraved to twice the size of the former, and all three are *unruptured*. The explanation simply is that the latter threads have not come from the spores at all, but from a cystidium—the spores engraved have not germinated, and have merely been *washed against* the spermatia-bearing threads.

As for the species experimented upon abroad (except Van Tieghem's plant), one is rare, and the other not British; the plants I have been working upon are common everywhere.

In the January number of the *Popular Science Review* will be found an illustrated paper of mine on the "Reproduction of *Agaricus lacrymabundus*." In this essay will be found not only some new facts as to the reproduction process in the Basidiomycetes, but a *résumé* of the views now generally held on this subject.

WORTHINGTON G. SMITH

The Late Eclipse

I FIND in NATURE, vol. xiii. p. 86, a letter from Dr. Schuster, commenting on some remarks made by me last April respecting the photographic results of the late eclipse. He appears to consider that these remarks related to him personally, which certainly was not my intention. He speaks further of a mathematical solution promised by me, for which he has "had to wait already a considerable time." I remember nothing of such a promise, nor can I conceive how I could have promised, instead of giving at once, the solution of so simple a matter. Dr. Schuster proves very readily that the spectrum of the corona can be photographed in one minute; but I am not aware that anyone has questioned the fact. What I questioned myself was whether the spectral images of the corona can be so photographed that the true extension of the corresponding coronal envelopes can be shown. To quote my own words ("Science Byways," p. 168): "The whole light" [of the corona] "acting at once to form a photograph does not show *the full extension* of the corona, the outskirts simply losing themselves through excessive faintness. . . . How, then, can a minute portion of that light produce any photographic trace" [of the *outskirts*]? "How much less can this minute portion show *the whole extension* of the green solar envelope?" It was the hope that this might be effected which I described as mathematically unsound.

I am so busy that I cannot enter further into this matter. But in any case the only justification of controversy respecting it would be the hope that some purpose useful to science might be subserved. This seems unlikely.

RICHD. A. PROCTOR

New York, Dec. 16, 1875

Blowpipe Analysis

THANKING you sincerely for the very well written and not altogether uncandid (if rather severe) review of my lately published work on this subject (NATURE, vol. xiii. p. 164), against any part of which I would not at present presume to appeal, I would ask for a corner of your valuable space to explain, with regard to "the production of a precipitate" of sodium sulphide by the addition of a drop of water to a fused mass of soda with a sulphide on aluminium plate, that the term "precipitate" undoubtedly used by me (as the reviewer says so) is obviously a "slip of the pen," for there can be no room to *precipitate* anything in a drop of water from a fused mass on aluminium plate.

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